# Humidity Sensor Temperature/Humidity Sensor ES2-HB ES2-THB

CSM\_ES2-HB\_ES2-THB\_DS\_E\_3\_4

#### Detect Humidity within an Accuracy of ±3% in a Compact Body. Controller Set Provides Superior Humidity Control and Temperature/ Humidity Control.

- · Employs high-polymer-resistive Sensor with superior durability.
- · Compact and lightweight.
- Measurement ranges of 20% to 95% for humidity and 0 to 55°C for temperature.

### **Ordering Information**

Name	Model
Humidity Sensor	ES2-HB
Temperature/Humidity Sensor	ES2-THB
Humidity Sensor Module (See note.)	ES2-M

Note: This is a replacement item. One Module is provided with the ES2-HB/-THB. Always attach the Humidity Sensor Module when using the ES2-HB/-THB. Approximately 7 VDC will be output for the humidity output if the Module is not attached or is incompletely attached.

### **Specifications**

Humidity Se	nsor section	High-polymer resistive		
Humidity de	etection range	20 to 95%		
Humidity detection accuracy		±3% (25°C, 40 to 80%)		
Power su	ower supply voltage 24 VDC (See note 1.)			
Operating	voltage range	85% to 110% of power supply voltage		
Current c	onsumption	10 mA max.		
Humidity	output	1 to 5 V (for humidity of 0% to 100%)		
		Permissible load impedance: 100 k $\Omega$ min.		
		(Use a 1:1 connection when connecting to an E5CC/E5EC/E5AC.)		
Temperature Sensor Section (See note 2.)		Platinum resistance thermometer		
Temperat detection		0 to 55°C		
Temperat	ure output	Pt100: 3 wire (See note 4.)		
Class		JIS class B		
Communications cable length		5 m		
Operating temperature and humidity range (See note 3.)		0 to 55°C, humidity of 95% max.		
Storage temperature and humidity range (See note 3.)		–20 to 60°C, humidity of 95% max.		
Degree of p	protection	IP 20 equivalent		
•		ES2-HB: Approx. 41 g (excluding cables) ES2-THB: Approx. 43 g (excluding cables)		

Note: 1. The maximum ripple voltage of 2% p-p max. The recommended power supply is the OMRON S8JX or S8VS.

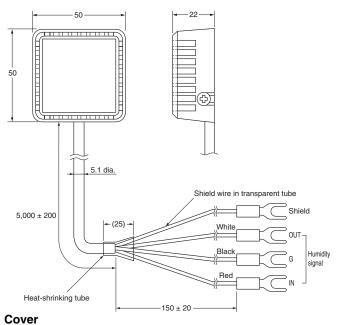
- 3. Do not use or store the Sensor for an extended period at a humidity of 90% or more.
- 4. Pt100 (JIS C 1604-1989) is used for the measuring elements. Set Pt100 for input sensor type of the Temperature Controller.



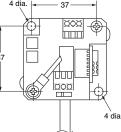
### **Dimensions**

Note: All units are in millimeters unless otherwise indicated.

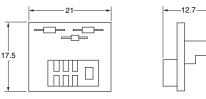
#### **ES2-HB Humidity Sensor ES2-THB Temperature/Humidity Sensor**







#### **ES2-M Humidity Sensor Module**



Note: Firmly insert the connector all the way in when mounting the ES2-M to the Sensor.

<sup>2.</sup> ES2-THB only.

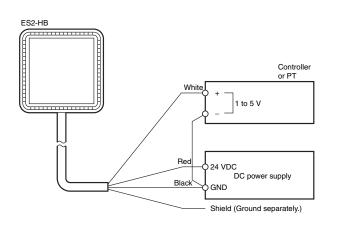
### **Precautions for Safe Use**

Do not use the product in the following locations:

- Locations subject to water splashing or oil contact
- Locations subject to dust or corrosive gases
- Locations subject to icing or condensation
- Locations subject to direct sunlight

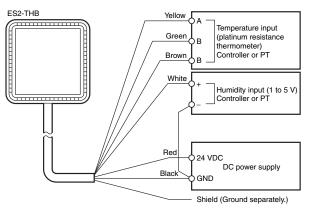
### **Connection Examples**

### **ES2-HB Humidity Sensor**



## ES2-THB Temperature/Humidity





### **Cable Conditions**

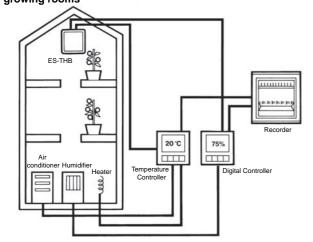
Item Mod	del	ES2-HB	ES2-THB
Diameter	1	AWG22	AWG24
Number of conductors	;	3	6
Shield	I	Braided	Braided
Maximum conductive resistance (20°	C) (	60 Ω/km max.	92 Ω/km max.
Finished outer cable diameter	į	5.1 mm	5.8 mm

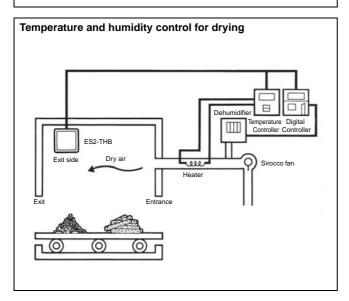
Note: Provide a separate cable according to the details listed at the left if the length of the supplied cable is insufficient. The cable can be extended to a maximum of 50 m.

### ES2-HB ES2-THB

### **Application Examples**

Temperature and humidity control for vegetable and fruit growing rooms

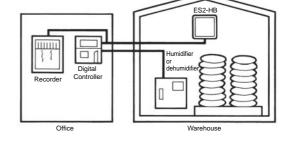


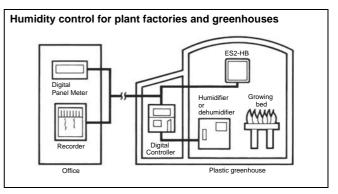


Monitoring and data collection for clean rooms and storage locations

Image: Control for Clean rooms

Image: Control for Clean ro





ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

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